

CLAIMS

What is claimed is:

1. A method of validating an e-ticket, comprising the steps of:

- a) sending the e-ticket from an initial receiving server S_i to a plurality of servers including S_i , wherein each server returns an answer indicative of whether that server previously answered an inquiry for the e-ticket;
- b) collecting the identities of the answering servers in an answer set, $REPLIES_i^\tau$;
- c) broadcasting the e-ticket and $REPLIES_i^\tau$ to the plurality of servers, if at least one server previously answered an inquiry for the e-ticket; and
- d) collecting the identity of any server S_k broadcasting the e-ticket and an associated answer set $REPLIES_k^\tau$ in a second answer set, $SRVS_i^\tau$ upon receipt of the broadcast.

2. The method of claim 1 wherein step b) is performed until a majority of servers has answered.

3. The method of claim 1 wherein step d) is repeated as long as S_i has not received its own broadcast and there is no server S_k in $SRVS_i^\tau$ such that $REPLIES_k^\tau$ is a subset of $SRVS_i^\tau$.

4. The method of claim 1 further comprising the step of:

- e) accepting the e-ticket if S_i receives its own broadcast and $REPLIES_i^\tau$ is a subset of $SRVS_i^\tau$.

1 5. The method of claim 1 further comprising the step of:

2 d) rejecting the e-ticket if S_i has received its own broadcast and
3 $REPLIES_i^{\tau}$ is not a subset of $SRVS_i^{\tau}$.

1 6. The method of claim 1 further comprising the step of:

2 d) rejecting the e-ticket if $REPLIES_i^{\tau}$ is a subset of $SRVS_i^{\tau}$ and S_i
3 has not received its own broadcast.

1 7. The method of claim 1 wherein the e-ticket represents a prior
2 reservation of goods or services.

1 8. The method of claim 1 wherein the e-ticket contains no
2 information specifically identifying the owner.

1 9. The method of claim 1 wherein broadcasts are performed in
2 accordance with a selected one of a pure atomic broadcast, a general
3 broadcast, a CT-broadcast, and an OPT-broadcast protocol.

1 10. A method of validating an e-ticket, comprising the steps of:

2 a) sending the e-ticket from an initial receiving server S_i to a
3 plurality of servers including S_i , wherein each server returns an answer
4 indicative of whether that server previously answered any inquiry for the
5 e-ticket;

6 b) selecting a conflict mode if at least one selected server of a
7 majority of servers answered a previous inquiry for the e-ticket; and

8 c) selecting a conflict-free mode if none of the majority of
9 servers has answered any previous inquiry for the e-ticket.

1 11. The method of claim 10 wherein step c) further comprises the step
2 of:

3 i) accepting the e-ticket.

1 12. The method of claim 10 further comprising the step of:

2 d) collecting the identities of the answering servers in an answer
3 set, $REPLIES_i^{\tau}$.

1 13. The method of claim 12 wherein step b) further comprises the steps
2 of:

3 i) broadcasting the e-ticket and $REPLIES_i^{\tau}$ to the plurality of
4 servers; and

5 ii) collecting the identity of any server S_k broadcasting the
6 e-ticket and an associated answer set $REPLIES_k^{\tau}$ in a second answer set,
7 $SRVS_i^{\tau}$ upon receipt of the broadcast.

1 14. The method of claim 13 wherein step b)(ii) is repeated as long as S_i
2 has not received its own broadcast and there is no server S_k in $SRVS_i^{\tau}$ such
3 that $REPLIES_k^{\tau} \subseteq SRVS_i^{\tau}$.

1 15. The method of claim 14 further comprising the step of accepting the
2 e-ticket if S_i receives its own broadcast and $REPLIES_i^{\tau} \subseteq SRVS_i^{\tau}$.

1 16. The method of claim 14 further comprising the step of rejecting the
2 e-ticket if S_i has received its own broadcast and $REPLIES_i^{\tau}$ is not a subset of
3 $SRVS_i^{\tau}$.

1 17. The method of claim 14 further comprising the step of:
2 d) rejecting the e-ticket if $REPLIES_i^{\tau} \subseteq SRVS_i^{\tau}$ and S_i has not
3 received its own broadcast.

1 18. The method of claim 10 wherein the e-ticket represents a prior
2 reservation of goods or services.

1 19. The method of claim 13 wherein broadcasts are performed in
2 accordance with a selected one of a pure atomic broadcast, a general
3 broadcast, a CT-broadcast, and an OPT-broadcast protocol.